Roberto Simanowski

Reading Digital Literature

A Subject Between Media and Methods

1   Defining Digital Literature

With the new media affecting basically every sector of individual and social life, even literary studies cannot proceed in their accumstomed way. Literary communication has fundamentally changed through the effects of the computer-based and networked media upon which it is based. Apart from the old—and with Amazon's "wireless reading device" *Kindle* renewed—threat the electronic book presents to print culture, literature is produced, distributed, perceived and discussed to an increasing extent online. Of course, most of it would fit well between two book covers and a great amount of the literature online is in fact written with the desire to become part of the realm of print. Such texts are not the subject of this book. They trigger questions about the economic and social dimension of literature, or, paraphrasing Pierre Bourdieu, about how cyberculture affects the "literary field." This book, however, investigates literary innovations with respect to new ways of aesthetic expression triggering questions such as those Jörgen Schäfer and Peter Gendolla list in their contribution to Part One of this book: Is there a new quality of literariness in digital literature? What are the terminological and methodological means to examine it? The subject of this book is not conventional literature disguised as "digital literature" or "digital publishing," as Raine Koskimaa names the production and marketing of literature with the aid of digital technology. The subject of this book concerns "digitally born" literary artifacts written *for* digital media, as Koskimaa puts it, or, as Noah Wardrip-Fruin states: "literary work that requires the digital computation performed by laptops, desktops, servers, cellphones, game consoles, interactive environment controllers, or any of the other computers that surround us."[1]

It should be underlined that the condition of "digital computation" is not fulfilled by the banal way of being created on a computer. What text is not created on a computer nowadays where pen and typewriter are rarely seen writing tools? The condition of "digital birth" points to the more existential characteristic of carrying the features of the "parents" such as connectivity, interactivity, multimediality, non-linearity, performativity and transformability. While many texts can easily migrate to the book page, "real" digital literature cannot

live without digital media—just as a film cannot live without a screen. Considering temporality as a significant but, as Koskimaa claims, undertheorized dimension of digital literature, one may say that digital literature is to mere *digitized* literature like film is to photography.[2]

Such a definition, however, would include any "digitally born" text. With respect to the second term in the phrase *digital literature*, it is necessary to pay attention to the specific use of language described as the *literary*. Schäfer and Gendolla consider this specific use as the production of an alternative reality; Zuern notes as *sine qua non* of the specifically literary text the figurative as opposed to the literal deployment of language; Janez Strehovec refers to Russian Formalism defining literariness as the sum of special formal properties, as deviations from "ordinary" use of language, as defamiliarization and estrangement.

Of course, such a quality is also characteristic of conventional literary works hypertextually annotated and multimedially furnished, which Koskimaa considers an extra category of digital literature: *scholarly literary hypertext editions*. However, the figuration and estrangement those texts present are specific in their use of language and not in the digital technology used for editorial purposes. Such texts are not written *for* digital media and do not represent the aesthetic means of digital media. The question important to us is: What are the equivalent strategies of figuration and estrangement when literature is digitally born? Strehovec is certainly right in maintaining that the concept of defamiliarization needs to be applied beyond the realm of linguistics to the entire cyber'language', including visual and acoustic material as well as genuine features of digital media such as intermediality, interactivity, animation and hyperlink. A more general definition therefore characterizes the literary as the arranging of the material or the use of features in an uncommon fashion to undermine any automatic perception for the purpose of aesthetic perception. However, the question remains: How can we identify the "unusual" in a realm of expression not yet old enough (and growing too fast) to have established the "common?" How do we look at experimental writing in new media that, as Koskimaa points out, are trying to create new conventions rather than to break the established ones? In addition, we may also ask how the unusual can intentionally be designed by the author if the work is based on interactivity (with the reader) and performativity (by the computer). We will come back to these questions when discussing the literariness of the link below in section three.

No matter how we eventually define the specific "literariness" of digital literature, it is evident that it undermines the identity of digital literature as *literature*. In addition to the *sine qua non* of literariness, there is another *sine qua non* regarding the essence of digital literature; namely, in that it is more than literature

defined in the traditional way. By definition, digital literature has to go beyond the employment of letters and it has to make an *aesthetic* use of the features of digital media. In digital literature, computation is, as Zuern holds, essential not only to the text as a particular kind of physical artifact, but also to the specifically literary properties of the text. The implication of such a notion is of a fundamental nature: If the features of digital technology are essential to the literary properties of the text, they inevitably more or less undermine the dominant status of the text. Similar to concrete poetry, where the meaning consists of a combination of the linguistic signification as well as the way this signification (i.e., the letters) appears, the appearance and meaning of digital literature consists of the linguistic (and visual/sonic) utterances as well as of the specific way these utterances are manifested and performed.

Paradoxically, undermining the prevalence of text as a linguistic dictum also undermines the digital nature of digital literature. This becomes clear if we take into account that texts consist of alphabetic letters—i.e., a small set of distinct, endlessly combinable symbols. With respect to the semiotic paradigm of the material (the distinct units), literature has, as Schäfer and Gendolla remind us, always been the result of digital coding. If the production of the letters is based on the binary code—as the operational paradigm of digital media—literature becomes digital in a double way. However, if we agree on the criterion that digital literature uses digital technology in order to be more than regular text, if we agree that in the case of digital literature writing exceeds the writing of text and includes the generation of visual, sonic and performative elements (which in contrast to letters do not appear as distinct units), then the second layer of being digital (within the medium computer) undermines the first (within the material). To put it another way: If literature in digital media only consists of letters as digital units, then it is not digital literature, for it does not apply the specific features of digital media. "Real" digital literature proceeds beyond the linguistic layer of digitality.

Going beyond the linguistic digital unit implicitly and potentially moves the subject at hand from the realm of literature towards the realm of the arts. The question of when to call a specific aesthetic phenomenon digital *art* rather than digital literature may be accompanied by the question of how much text such a phenomenon must contain in order to still call it *literature*. However, the counting of words or letters may not be the most sufficient means for deciding this question since there are many works that provide a lot of words and letters but nonetheless can be perceived without any reading. Hence, a more appropriate question may be how the audience engages with a piece that contains letters without being reduced to pure text. If the piece still requires reading as a central activity, we may call it digital literature. If it allows playing with the letters as mere visual objects—as is the case in *Text Rain* by Camille Utterback

and Romy Achituv as well as *Re:positioning Fear* by Rafael Lozano-Hemmer—we may consider it digital art. As the mentioned works exemplify, the choice can be left to the audience and can, as in the case of *Listening Post* by Mark Hansen and Ben Rubin for instance, also be switched within the moment and place of perception.[3] However, in academic research the demarcation between digital literature and digital art is, as N. Katherine Hayles notes, "often more a matter of the critical traditions from which the works are discussed than anything intrinsic to the works themselves" (12) and, we may add, their likely or observed way of perception.

Hayles' assumption about the role of the researchers' individual preferences and prejudices seems to be confirmed by Maria Goicoechea's observation within the context of Spain that some critics (Goicoechea calls them *technosceptics*) still consider language the actual material of digital literature and hence expect digital literature to retain the domain of the word over other signifying elements, while others (the *technophiles*) expect digital literature to transcend the realm of the word in favor of a hypermedia genre following experiments in literary history such as language art and concrete poetry. With respect to experiments in the history of literature and the arts, Schäfer and Gendolla point to the precursors of certain phenomena in the realm of digital media but also warn against oversimplified contextualization considering the completely different technological and inter-relational (artist-work-audience) settings of seemingly similar artifacts in classical avant-garde and contemporary digital arts: "What, on the surface, seem to be resemblances or analogies of new media art to the modernist tradition, are symptoms of a radical change in media technologies whose mid- and long-term consequences we are only beginning to realize." The risk of explaining digital literature inaccurately from the logic of parenthood should of course (as Koskimaa is pointing out in his essay in Part Two) not prevent anyone from beginning a course on digital literature with lectures on classical avant-garde (Futurism, Dadaism, Surrealism) and later experimental writing such as mail-art, concrete poetry, sound poetry, and Oulipo. The overall task, it seems, is to be aware of the historic continuities as well as discontinuities that materialize in digital literature or art respectively.

Going beyond the traditional use of letters as signs with a linguistic value has not only consequences for the definition of the literary in digital literature but also for the historic contextualization of digital literature. It is obvious that digital literature is partaking of the literary tradition as well as of the developments in other art genres and hence ought to be discussed including this broader spectrum. Such multiple partaking places digital literature among different media and, consequently, among different academic disciplines. The subject, whose central feature Schäfer and Gendolla define as connectivity, is

interconnected in a very complex net of different academic disciplines among which are not only aesthetic ones such as literary studies, performance studies and visual arts, but also computer science and, focusing on the aspect of networks and connectivity in a more general way, sociology and neuroscience. This specific characteristic and history of digital literature naturally makes it difficult to find the right institutional location for this subject. The contributions to Part Two in this book report on these difficulties, which I will discuss in the second section of my introduction to this part. The following section, however, explores the consequences the specific characteristics of digital literature have for the methodological approach to this subject.

2   Reading Digital Literature

While early scholarship discussed digital literature primarily against the background of contemporary theories such as post-structuralism and postmodernism, this book intends to discuss, beyond the meta-theoretical component, the aesthetic effects of the new phenomenon. A starting point is certainly an enhanced differentiation of the various forms of digital literature and a greater specificity about the forms and roles of computation involved in the works we are considering. Wardrip-Fruin, claiming such differentiation and specificity, for example distinguishes between "computationally variable" and "computationally fixed" digital literature depending on whether the computation is defined in a manner that varies the work's behavior (as in random text generation or interactive work) or does not lead to variation (if the narrative appears repeatedly in a predetermined way). The earlier can be further differentiated between those works that vary with or without input from outside the work's material. Within the works affected by outside input (Wardrip-Fruin speaks of "*interactive* variable digital literature"), one can distinguish yet again between those that are modified by human or by non-human input.

Such a formalistic approach may avoid the generalization known from early scholarship regarding digital literature. However, it may also obstruct the attention to the single work if it is still understood as an object of technology rather than as an act of creative expression. Though the study of digital literature, no doubt, ought to take into account non-linguistic features of the text (navigational, interactive, performative, multimedial aspects) that are no less definitive of its literariness, it should not, as Zuern underlines, emphasize medial specifics at the expense of the concrete object. Zuern warns of what in post-structural criticism is called "thematic" reading and which often also appears with respect to the underlying technology of digital literature. While we should pay attention to the underlying technology and the presupposed prede-

cessors of digital literature, we must, Zuern holds, not reduce the specific example of digital literature to becoming a representative of digital media, "cyberculture," or what Hayles calls "legacy concepts." Zuern's notion presents a methodical approach quite different from Wardrip-Fruin's and is certainly appropriate if it does not mean neglecting the historic context and medial determination of a specific artifact. While we must not be indifferent to the specificity of the genre of digital literature, we also should not be indifferent to the particularity of its concrete examples. To put it in this way: In contrast to general theoretization, rigorous close reading starts with looking at the trees rather than at the forest.

But what are the techniques of close reading that account for the media-specific and cross-media figuration of digital literature? What might be a useful framework for thinking about the elements and contexts of works of digital literature? "What do we need to read, to interpret, when we read digital literature?", Wardrip-Fruin asks himself. His answer: We must read both data and process; the data of a work being words, images, and sounds, and the process being algorithms and calculations carried out by the work. Wardrip-Fruin then expands his model and includes interaction, surface, and context, the first signifying change to the work coming from the outside, the middle being the site of the work's presentation (and any interaction), and the last signifying the technological context (the software used to access data and process) as well as the social context of the recipients. Such a five-part model covers the different aspects of a work of digital literature contributing to its overall meaning and it seems to be a good point of departure for a systematic close reading.

Worth considering is also the two-perspective model by Koskimaa which by aiming at the perceiver rather than at the work raises the question "Is the code part of the work?" From the perspective of the user, Koskimaa notes, most works don't need any knowledge (beyond the ability to install a work).[4] The situation is different from the perspective of the researcher and teacher who may be unable to undertake a systematic analysis of a work and to establish an accurate description of it without understanding the basics of programming. This model reflects the real situation of the encounter with digital artworks; namely, that most people in the audience will not know how the work is programmed and, even if they did, would not know what difference it makes. It seems obvious that it is the job of the researcher and teacher to recognize the difference in a similar way as the professional critic of a painting, sculpture or conventional literary text does whose knowledge of art or literary history allows her to recognize and point out the intertextuality and connotations of the work. But is it really the same? Is the equivalent to the specific code used in the case of digital art really art history in the case of painting?

Isn't the counterpart to code rather paint, material or technique (i.e., woodcut, etching, drawing, watercolor, fresco, oil)? While we are unsure how much the professional art critics (need to) know about paint, we are certain that the technique used in any visual art defines how the visual appears and this definitely has to be factored into the interpretation. The technique, we may say, is part of the message; the woodcut is not purely by chance one of the prevalent techniques in Expressionism. Hence, when Koskimaa talks of the possibility that the work generates new contents during the reading process or imitates loop-effects through certain circular structures, we may either (as users) interpret these phenomena as such, or (as researchers/teachers) interpret with respect to the program language (technique) within which it is carried out. In the first case we will rather look for meaning; in the second we will first of all acknowledge virtuosity. Thus, Koskimaa's two-perspective model appears to be not simply about different depths in the perception and reading of a work but about different directions and even conceptualizations of art. It remains to be discussed what consequences this kind of "double aesthetic" has for the author/programmer of digital art and how the researcher/teacher should position herself (in contrast or accordance to the user).[5]

An approach to digital literature without focusing on materials or techniques but rather on art history is the approach from the perspective of a specific genre as exercised by Schäfer and Gendolla, who discuss the matter of narrative coherence and reading pleasure with respect to the detective story in digital media. While to a certain extent readers always act like detectives trying to figure out the meaning of a text by collecting "evidence," it can be said that particularly with respect to interactive digital literature the reader duplicates the investigation of the detective reconstructing the story by reconstructing the text. However, it is obvious that the specific structure of the hypertext and the unstable text of permutative literature contradict the central aesthetic elements of this genre: suspense and the discovery of carefully hidden information. The problem is not necessarily that the reader's interactivity inevitably interrupts her immersion into the story. As long as the reader's exact observation of the text and reasoning about the data revealed is rewarded with access to the next segment of text, she can still feel like a real detective coming closer and closer to the solution of the case as demonstrated by the discussed computer game *Sherlock Holmes: The Case of the Silver Earring*. The problem occurs when information is disclosed at the wrong time as can be expected in alternatively navigable hyperfictions.[6] One conclusion is to "discipline" the hypertext by forcing it to reveal information into the desired, predetermined order which can be ensured by "conditional links" linking only after certain requirements (like visiting other text segments first) are fulfilled. Among the interesting results of Schäfer's and Gendolla's discussion is the fact that literature does not work if it

intends to work like "real life." This becomes clear when Jean-Pierre Balpe justifies the fact that his generative crime novel *Trajectoires* does not provide the reader with the same clues again if she returns to the same page for a second time, remarking that this is exactly what a cop would experience in real life: You met a concierge who told you something, you see her again three hours later and she does not tell you the same thing again. This may reflect the every-day working situation of detectives and policemen, Schäfer and Gendolla comment on Balpe, but it infringes on the narrative trajectory of the detective novel.

Interesting in this context is also Karin Wenz' account of the relationship between computer games and fanfiction pointing to the narratological charac-teristics of computer games: the fact that the roles of the protagonist of the narrative and the player often conflate and that the protagonist's (or avatar's) character remains flat since its functionality in the game world is more impor-tant than its fully developed personality. This specific trait of the computer game genre stimulates and allows the fans' further development of the game's characters, which is why Wenz answers the old dispute whether games possess narrativity in a quite surprising way: "Games possess narrativity as they func-tion as source for fanfiction." Apart from the narratological point and trans-medial aspect (games as source for text), fanfictions—not only those based on computer games—also allow engaging in a political discussion of contempo-rary culture as they confront the paradox that blockbusters such as *Star Wars* and *Lord of the Rings* trigger a "productive reception" in which the "passive," allegedly distracted consumer appropriates the product of the culture industry (as Adorno would have said) by way of "poaching"—as Henry Jenkins defined this form of appropriation in his essay "Star Trek Rerun, Reread, Rewritten: Fan Writing as Textual Poaching" (37-60).

Another approach strongly indebted to the receptive and interactive impli-cations of game studies is Astrid Ensslin's concept of cybersomatic criticism. Along with Hayles (118) and inspired by phenomenologists such as Mark B. Hansen and Maurice Merleau-Ponty, Ensslin focuses on the human body as an integral part of the reading process, which has been categorically neglected by reader-centered literary criticism. Especially in the case of Kate Pullinger et al.'s *The Breathing Wall* where the reader gains access to the text depending on her breathing, the reader's body becomes part of a cybernetic feedback loop. In this feedback loop, both machine and human operator engage in a perpetual process of stimulus and response, of mutual action and reaction, which seems to shift power away from the user to the machine, and creates a communica-tive circuit between biological/human and technological/digital organisms. This idea more generally calls out for an innovative focus on the physical and

physiological situatedness of reading, which Ensslin initiates with her reading of *The Breathing Wall*.

Informed by traditional literary studies rather than by the poetics of a traditional genre is the methodical model provided in Zuern's close reading example that focuses on the figuration in digital and non-digital literature. Such a focus is common practice in literary analysis, though now figuration is analyzed not only in verbal but also in visual and procedural forms, comparing and discussing the material differences between conventional and digital literature. In his analysis of Rudy Lemcke's 2002 digital video piece *The Uninvited*—a combination of photography, poetry, animation, music, and display space that represents the hallucinatory thoughts of a homeless Vietnam war veteran, Zuern refers to Rainer Maria Rilke's 1902 poem "Autumn" for its thematic similarity: both texts transform and elevate the clichéd topos of autumn leaves into an emblem of ethical responsibility. Rilke's poem gradually transforms "falling" from a physical movement of dying leaves to a metaphysical condition of existence. Lemcke's video piece presents shadow puppets made of leaves that function as tropes not because of linguistic figuration (as in Rilke's poem) but because of the process of their production: the shadow puppets are photographs of three-dimensional puppets constructed from dried plants in San Francisco's Golden Gate Park, the images posterized with the software *PhotoShop* and animated, along with the text of the poem, in *AfterEffects*. According to Zuern, Lemcke's leaves, like Rilke's, have been poetically processed with the result that the literal signifiers refer to deviant, indeterminate signifieds. However, while Rilke's anthropomorphization of the leaves is carried out in the poem, Lemcke's anthropomorphization of the leaves is carried out in the process of producing the images used in the video, i.e., outside of the artifact itself. In order to make sure the leaves eventually function as trope, *The Uninvited* actually needs a paratext explaining the material background of the video's images. It goes without saying that the audience also needs to read this paratext. The comparison Zuern undertakes between the example of conventional literature and the example of digital literature leads to the conclusion that in digital literature the figuration is not only carried out with means other than linguistic ones but is also carried out outside of the artifact with the consequence that the audience not only can fail to understand the shift of the literal to the figurative signifier; it can also fail to understand being exposed to this shift at all.

Zuern's cross-media application of classical criteria in the analysis of literature bears the question to what extent other concepts used in classical rhetoric can be applied in the reading of digital literature. If, for instance, in conventional literature the notion of rhyme represents the repetition of identical or similar

sounds in words, in the context of digital literature one may also take into account the repetition of identical or similar animation as a new way of creating paradigmatic relationships within elements of a kinetic text. In a similar way allegory, traditionally understood as a narrative representation of ideas and principles by characters and events, may now be carried out by the animation of words. Such questions are discussed systematically by Alexandra Saemmer, who illustrates with several examples from French and American digital literature the suitability of classical rhetoric terms for the study of digital literature. Saemmer is aware of the fact that the conventional taxonomy, developed to characterize *textual* phenomena, has only limited value when describing the stylistic devices of digital literature, which naturally include other semiotic systems such as the visual and the performative. Consequently, in her discussion of interfacial media figures, Saemmer develops her own terminology such as "kinaesthetic rhymes" and "kinetic allegory" or "transfiguration" (morphing a word into another), "interfacial antagonism" (where the media content provoked by the interactive gesture is contrary to the announced and expected content) and "interfacial pleonasm" (where the interactive gesture does not provoke the emergence of additional information). With this terminology Saemmer also offers a way to explore the literary qualities of a link, one of the main features of digital literature. Analagous to natural language, and similar to Strehovec with his reference to Russian Formalism, Saemmer holds, it is the undermining of established grammatical rules that constitutes literariness: the incongruous, seemingly "irrelevant" link. Insofar as such a discrepancy with common usage runs the risk of being perceived as a malfunction, the *literary* collides with media *literacy*. Saemmer concludes that only consistency between a detected incongruity and the context helps in deciding whether one is confronted with a bug or an intentionally created figure, thus demanding a stabilization of the destabilization. It will——this is the (pedagogic) consequence of such a theoretical perspective——be important to understand (and teach) that certain grammatical rules of digital language are creatively dismissed on behalf of the poetic function of the digital text.

There are other concepts used to describe the specific experience of digital literature and arts, sometimes illustrating certain feelings triggered in this experience already with the terminology employed. With respect to the collaboration between the human author and the machine and the creation of the work by the computer or the World Wide Web, Koskimaa discusses the position of the "cyborg-author." With respect to the hyperlink, Strehovec, for instance, speaks of "techno-suspense" and "techno-surprise": the uncertainty when the reader clicks on the link and the sensation when she arrives at the new unit after that click. With respect to the uncertainty and uncontrollability of the appearance of a coded work on computers with different hard- and

software, Saemmer quotes Philippe Bootz' concept of an "aesthetics of frustration." It is worth noting how here the performativity of the computer leads to the (unconscious) appropriation of a concept known from performance studies. In her seminal essay *Performance and Theatricality: The Subject Demystified* (1982), Josette Féral notes that the absence of narrativity in performance art "leads to a certain frustration on the part of the spectator" (215). This "aesthetics of frustration" has been described by Randy Martin as a replacement of the "solitary authority of the symbolic with the polyphonous circulation of human feeling;" the performing body is—as *phenomenal* body—"resistance to the symbolic, which attempts to limit the meanings of action and the body, to channel the flows of desire" (175). In the case of Saemmer and Bootz it is the absence of a solitary appearance of the work that undermines the authority of the symbolic. While the performance artist not only accepts but intends such frustration, the author of a digital artwork tries, more or less successfully, to counteract the frustration resulting from the applied technology by coding the work in such a way that it reliably appears even on different technological platforms.

Nevertheless, the lack of narrativity and meaning, discussed by Féral and others with respect to performance art, is also an element of digital literature and arts. If we consider not the performative aspect of the computer but the allowed and required performativity of the audience within an interactive work, the symbolic is, more or less, replaced by "flows of desire," as Martin puts it for performance art. Interactive art—especially installations such as *Text Rain* and *Re:positioning Fear*—produces "space-times" of "inter-human experiences," where people can elaborate "alternative forms of sociability," as the French theorist and curator Nicolas Bourriaud points out (44). It is an art that attempts "not to tell (like theater), but rather to provoke" relationships between subjects, to apply Féral's statement on performance art (215) to interactive installations. The difference, however, is the shift from frustration to pleasure: Interactive art immerses the audience into the work and thus allows focusing on action and play rather than on interpretation. The work may require a proper understanding of all the information provided, be it the specific options of interaction or the facts of the story, in order to proceed with the interaction or to the next level of the computer game. Such understanding, however, is only functional and, if it fails, does not lead to the "semiotic frustration" attributed to the non-narrative performance art. However, it is also important to keep in mind—and some close readings in this book will help us do so—that even though a work of digital literature and art may be the unpredictable result of the audience's interaction with the work and with each other, the specific mode of interaction is designed and controlled by the artist; often symbolically enough to reflect its deeper meaning. It may be possible to dismiss any reflec-

tion without feeling frustrated if the interaction itself is perceived as interesting and rewarding enough. Since it would be frustrating from the perspective of a researcher and teacher if the aesthetic experience of this new form of art were limited to functional interaction, this book promotes a semiotic reading of this new art form and aims at providing such reading with the necessary theoretical and methodical tools.

Notes

1   What Zuern, Wardrip-Fruin and others (including myself) call "authentic" digital literature is called *cybertext* by Koskimaa due certainly also to the influence of Espen Aarseth's theoretical work in Scandinavia, though Koskimaa's doctoral thesis of 2000 was still entitled *Digital Literature: From Text to Hypertext and Beyond*. Astrid Ensslin, by contrast, refers to *cybertext* in the sense of a third generation of digital literature, which is characterized by the "empowered" text/machine, i.e. the machine code which takes over control of the reading process, thus turning it into a cybernetic performance. Schäfer and Gendolla prefer the term *net literature* which was especially popular in Germany where the discussion of digital literature only began after the arrival of the Internet (Simanowski, "Interactive Fiction und Software-Narration"), although in Schäfer's and Gendolla's adoption "net" is not restricted to the Internet but also includes feedback loops in stand-alone computers and the communications of a user with her computer. If in this introduction and the introduction to Part Two the term "conventional" or "traditional" literature is used, the aim is to differentiate it from "digital" literature as defined above and not to judge its poetic quality as conventional/traditional in contrast to advanced/avant-garde. Unless stated differently, references to contributors aim at their articles in Part One.

2   Such an analogy refers to temporality not in terms of narrativity (which distinguishes both conventional literature and film from media that capture a single moment such as photograph, painting and sculpture) but aims at the kinetic aspect of the material (the moving film and the altering text on the screen).

3   Cf. my case studies of *Text Rain* and *Re:positioning Fear* using the material's function more than its proportion to distinguish between the two forms "literature" and "art" (Simanowski 2010: chapter one). Since in the mentioned interactive installations text continues to be important as a linguistic phenomenon in order to understand the work (and can be accessed in-

dependently of the installation as conventional text on a web site), we may also consider it digital *literature* depending on how the audience engages with the work. In the case of *Listening Post* the option of perceiving the text as linguistic utterance or as audio-visual object exists at the exhibition venue and depends on the audience's physical distance to the work (cf. chapter six).

4   As an example that does require a more profound understanding of the software environment also from the user, Koskimaa mentions *code art*; i.e., poems written in a way that work as executable code in a certain programming language.

5   One consequence is implicitly alluded to by the distinction between the author and the programmer of a digital artwork with the author commonly conceptualizing what to do (what it could mean) and the programmer considering how to do it (how the code would be most effective, elegant, sophisticated).

6   It should be pointed out that hyperfiction is a specific way of structuring text which also may be considered a specific technique of presenting information, but should not be mistaken for what was defined as technique in terms of program language before; there are different techniques (program languages) to create the structure of a hypertext.

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